

PLEISTOCENE SHELLS FROM SAN CLEMENTE ISLAND, CALIFORNIA

BY T. D. A. COCKERELL

I visited San Clemente Island in May of this year, and was very fortunate in getting there in time to examine an extensive sandy deposit about the middle of the top of the island, which had been recently uncovered in the course of operations by the navy.

I was kindly taken to the place by Mr. J. A. Wahler, and was assisted in collecting the fossils by Dr. J. T. Scott and Mr. Logan Buehart. The deposit, which is full of marine shells, is about 800 feet above sea level, or rather more, the surface of the ground, where undisturbed, being 860 ft. above the sea.

I sent a series of the shells to Miss Myra Keen, of Stanford University, and she promptly transmitted the list given below, which I publish with her permission. She states that the "median of midpoints" is 39.6° , corresponding with the Timm's Point Bed on the mainland, as described by Alex Clark.

PELECYPODA

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|-------------------------------------------------|------------------------------------------------------|
| <i>Cardita ventricosa</i> Gould | <i>B. rugatum</i> Carpenter |
| <i>Crenella divaricata</i> (d'Orbigny) | <i>Dentalium</i> cf. <i>rectius</i> Cpr. |
| <i>Epilucina californica</i> (Conrad) (N., M.) | <i>Diala</i> sp. |
| <i>Glycymeris septentrionalis</i> (Middendorff) | <i>Hipponix cranioides</i> Carpenter (N.) |
| <i>Luciniscia nuttallii</i> (Conrad) | <i>Homalopoma carpenteri</i> (Pilsbry) |
| <i>Mytilus californianus</i> Conrad | <i>Lacuna</i> sp. |
| <i>Psephidia</i> cf. <i>lordi</i> (Baird) (M.) | <i>Littorina scutulata</i> Gould |
| <i>Spissula planulata</i> (Conrad) | <i>Mitrella carinata</i> (Hinds) |
| <i>Transennella tantilla</i> (Gould) | <i>M. gausapata</i> (Gould) (N., M.) |
| | <i>M. tuberosa</i> (Carpenter) |
| | <i>Nassarius fossatus</i> (Gould) |
| | <i>Odostomia</i> cf. <i>stearnsii</i> Dall & Bartsch |

GASTROPODA

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|------------------------------------------|----------------------------------------------|
| <i>Acmaca incessa</i> (Hinds) (N.) | <i>Ocnopota</i> sp. |
| <i>A. mitra</i> Eschscholtz | <i>Olivella biplicata</i> (Sowerby) (N., M.) |
| <i>A. pelta</i> Eschscholtz (M.) | <i>Opalia chacci</i> Strong |
| <i>A. scabra</i> (Gould) (N., M.) | <i>Polinices lewisii</i> (Gould) |
| <i>Amphissa versicolor</i> Dall | <i>Tegula funebralis</i> (A. Adams) (N.) |
| <i>Bittium eschrichtii</i> (Middendorff) | <i>Tritonalia foveolata</i> (Hinds) |

The letters N. and M. following the names, indicate that the species was also found by me in the Pleistocene on San Nicolas and San Miguel Islands, respectively. On these islands, also the deposit was on the top of the mesa. On San Nicolas, Pleistocene shells are found at various levels, but excepting those near the top, they are under suspicion of having come down the slopes with the talus. These finds of Pleistocene shells on the islands are of considerable importance as indicating that the islands were nearly submerged. But the land shells, on a deposit above the marine beds, appear to prove that there was always some emergent land. This is also indicated by the plants.

On San Nicolas, on the slopes, marine and land shells are sometimes found mixed, but careful examination shows that the latter are all from a superficial deposit later than that carrying the marine shells.

**TYPE SPECIMEN OF *BUSYCON PERVERSUM*
(*MUREX PERVERSUS* LINNÉ)**

BY BURNETT SMITH

This note is made possible through the liberal policy of The Linnean Society of London in granting permission to publish photographs of the type of *Murex perversus* Linné. Mr. R. Winekworth of London has very kindly examined the specimen for the writer, and Dr. Henry A. Pilsbry of the Academy of Natural Sciences of Philadelphia has contributed many helpful suggestions. To the Linnean Society and to these gentlemen the writer wishes to express his thanks. Plate 7, figs. 1, 2 are reproductions of the type photographs.

The desirability of consulting the Linnean type was suggested by Hanley's discussion of *Murex perversus*.¹ He says: "The *Pyrrula perversa* of authors (Reeve, Conch. System, pl. 236, f. 5) is marked for this shell in the Linnean collection, and 'List. 907, 908' has been added in the revised copy of the 'Systema.' All the synonyms are usually accepted as correct, but Gualtieri's engraving (manifestly taken from a broken example), in the

¹ Hanley, *Sylvanus: Ipsa Linnaei Conchylia*. London 1855. See p. 302.